

REMARKS

Claims 1-9, and 11-18 remain active in the application. Claim 1, 4, 11 and 16 have been amended. Claims 10 and 19-24 are canceled without prejudice.

Claims 1, 14 and 24 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Caccoma et al. (U.S.P. 4,341,090) (Caccoma) in view of Simon (U.S.P. 5,596,229)

Applicants respectfully traverse the rejection of the claims cited for the following reasons:

Applicants teach a carrier having a cavity holding a plurality of parts integral to the carrier, wherein the parts to be assembled are integral to the carrier. That is to say that the parts are part and parcel of the carrier, simultaneously built with the carrier and made of the same material. The same applies to the assembly area having a cavity provided with alignments integral to the assembly, and also applies to the transport which is integrated to the same substrate.

The Office Action admits that Caccoma does not teach posts to guide the carriers containing parts. The Office Action further admits that Caccoma does not teach a carrier holding a plurality of parts and an assembly area having a cavity.

Applicants submit that the combination of Caccoma with Simon does not render the cited claims unpatentable since the respective teachings are incompatible with one another, rendering the combination inoperable.

Firstly, Caccoma teaches a batch placement system for positioning ‘chips and the like’ upon a substrate containing an array of sites, wherein the actual positions on the substrate vary over successive substrates, and where the chips to be positioned are external to the batch placement system. Nowhere does Caccoma teach nor suggest that the ‘chips and the like’ (i.e., the parts to be assembled) be integral to an on-chip system that contains not only a carrier carrying a

plurality of parts but also an assembly area having a cavity provided with the alignment posts and a transport for moving the parts to be assembled. Thus, the entire on-chip system taught by the Applicants including all the cited elements is totally self-contained and teaches away from Caccoma's chip mounting system.

According to the Office Action, Caccoma's aforementioned chip mounting system is to be combined with Simon's chip carrier structure containing a chip carrier having electrical contact pads including a positioning structure for the chip carrier and a slotted structure mated to form a mated structure containing said chip carrier, the slots of the slotted structure being in alignment with the pads of the chip carrier. The Examiner's attention is particularly drawn to the customized chip carrier taught by Simon that contains a mated structure tailored to be used exclusively for a specific part. In contrast, Applicants' carrier is integral to the overall carrier and is capable of carrying any type and any number of parts.

When Caccomas' and Simons' teaching are combined, the resulting structure allegedly positions chips that are external to the batch placement system, *as taught by Caccoma*, with a chip carrier structure *taught by Simon* having electrical contact pads with a positioning structure that includes a slotted structure mated to form a mated structure containing the chip carrier, the slots of the slotted structure being aligned with the pads of the chip carrier. Thus, the combination of Caccoma and Simon teaches away from Applicants' teaching who require that parts to be assembled be integral to the carrier, contradicting Caccoma and Simon, and which in addition requires that the chips external to Caccomas' batch placement system somehow conform to the "slotted structure mated with a mated structure containing the carrier" of Simon, again teaching away from the Applicants.

Secondly, the combination of Caccoma and Simon fails to provide a carrier carrying parts that are integral to the on-chip system taught by the Applicants, in which, the assembly area must have a cavity provided with alignment posts. As previously stated, the respective teachings of Caccoma and Simon are incompatible with one another, rendering the combination inoperable.

In view of the foregoing, Applicants respectfully request that the Examiner reconsider and withdraw the rejection of the claims 1, 14 and 24 as being unpatentable over Caccoma in view of Simon.

The Office Action states that Claims 2-5 are unpatentable under 35 U.S.C. 103(a) over Caccoma in view of Arakawa et. al (Arakawa).

Neither Caccoma nor Arakawa, whether individually or in combination teach an on-chip assembly system wherein a carrier holds parts to be assembled that are integral to the carrier, the assembly area having a cavity provided with alignment posts integral to the assembly area, and a transport having elements thereof integral to the substrate.

With reference to Claims 2 to 4, Applicants teach the formation of a cavity on a substrate with posts or angled sidewalls integral thereof, again in an on-chip assembly system wherein individually: the carrier, all the parts to be assembled, the assembly area, the transport and the cavity are integral of the respective system components.

Furthermore, Applicants contend that Arakawa's teaching is unrelated to the teaching of the Applicants, since besides not being integral to anything, Arakawa's teaches only alignment marks, which teach away from the posts taught by the Applicants, since Arakawa's alignment marks apply to 'batch alignment and positioning of independently manufactured packaged IC chips, in contradistinction with the posts taught by the Applicants that are fabricated for 'alignment within the cavity integral to the substrate'. Thus, the combination of integral alignment posts within an integral cavity for a self contained, Applicants' teaching of the on-chip assembly teaches away from the combination of Caccomas' batch placement system in combination with Arakawa's 'alignment marks'.

The Office Action states that Claims 6-7 and 9-13 are rejected as being unpatentable under 35 U.S.C. 103(a) over Caccoma in view of Galli.

Applicants respectfully traverse the above rejection.

Galli's teaching relates to semiconductor chip packaging, wherein the carrier is a strip and the like, i.e., packaging components unrelated to the substrate. Galli never mentions nor suggests a mechanical system or sub-system built on a chip. In contradistinction, Applicants teach a plurality of in-situ parts of the same material and integral to the carrier. All references to 'mechanical tabs' in Galli are connections of the product to their film. Applicants' 'mechanical tabs' are integral with the parts, including the carrier which may subsequently be removed.

Now, the combination of Caccoma with Galli does not teach nor suggest an on-chip assembly system wherein the carrier, all the parts to be assembled, the assembly area, the transport, and the cavity are integral of the same substrate. And just as significantly, the on-chip assembly system taught by the Applicants does not use components or materials that differ from the material used for the fabrication of the substrate.

Accordingly, Applicants respectfully request that the Examiner reconsider and withdraw the rejection of claims 1-9, and 11-14 as being unpatentable under 35 U.S.C. 103(a) over Caccoma in view of, respectively, Arakawa and Galli.

Notwithstanding the above considerations and arguments, Applicants submit that in the section Response to Arguments, the Office Action states that claims 10 and 15-18 would be allowable if rewritten in independent form. In order to advance the prosecution of the present application, Applicants have opted to amend independent Claim 1 by incorporating therein the limitations recited in Claim 10.

In view of the foregoing arguments and amendments, Applicants believe that they have now overcome all the rejections to the application, and respectfully request that all the amendments be entered, and that the Examiner pass all the pending claims to issue.

If the Examiner has any questions or believes that further discussion will aid examination of the application, a telephone call to the undersigned Applicants' representative is encouraged.

Respectfully submitted,

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